

FIG. 1

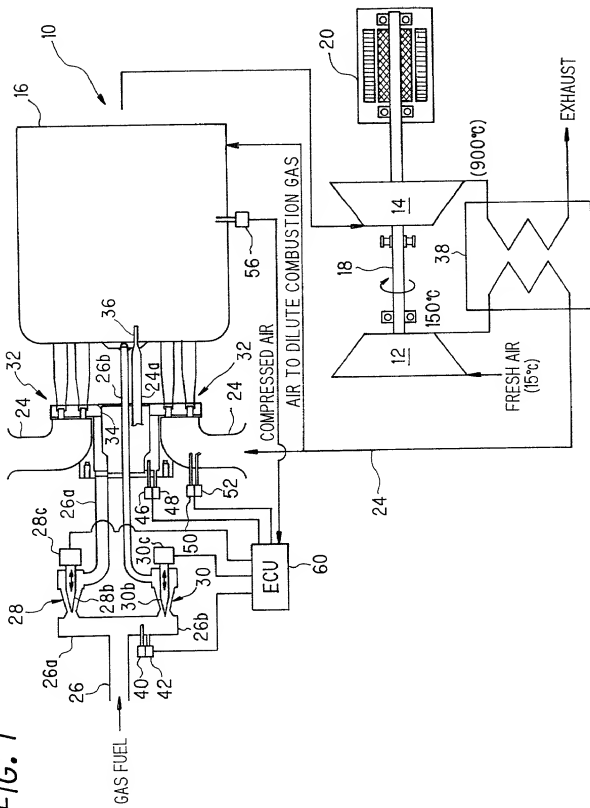
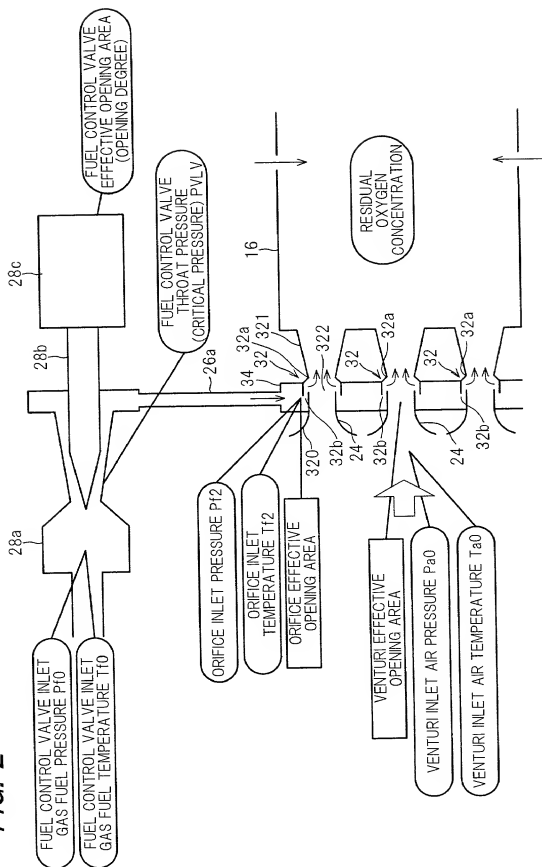


FIG. 2



[illegible]

FIG. 4

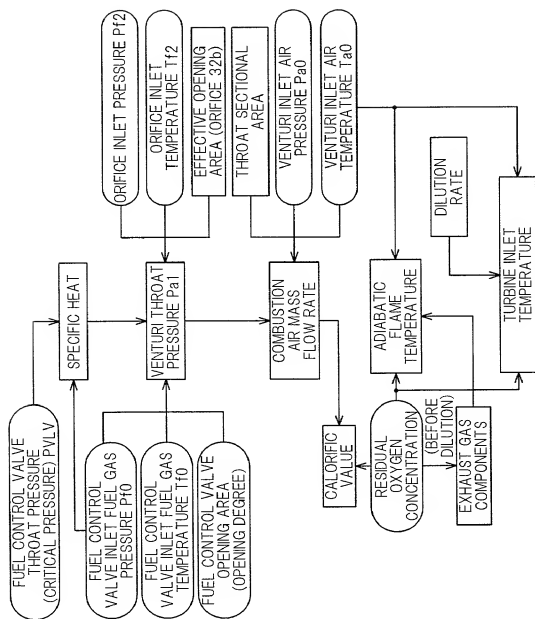


FIG. 5

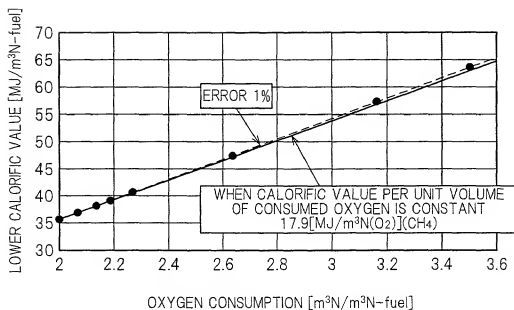


FIG. 6

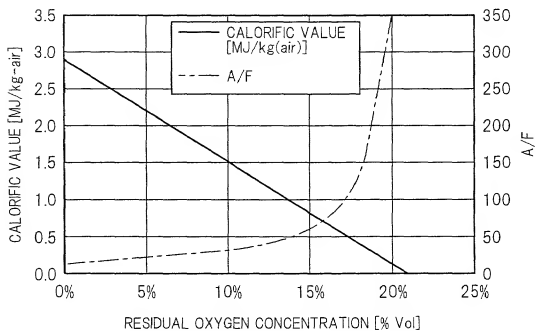


FIG. 8

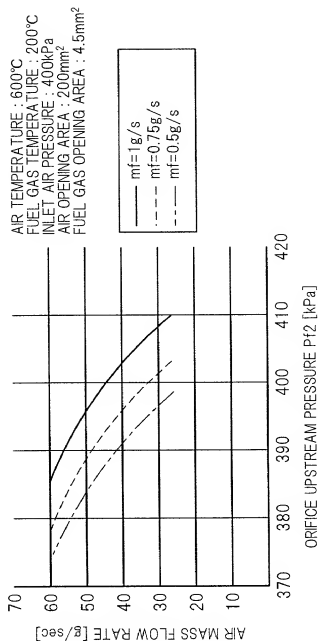


FIG. 9

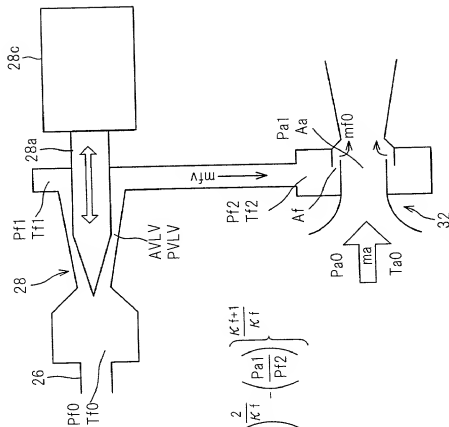
$$mf_v = \frac{Pf_0 AVL_v}{\sqrt{RTf_0}} M \sqrt{\kappa_f} \left(1 + \frac{\kappa_f - 1}{2} M^2 \right)^{\frac{\kappa_f + 1}{2(\kappa_f - 1)}}$$

$$mf_0 = \frac{Pf_2 Af}{\sqrt{RTf_2}} \left\{ \frac{2 \kappa_f}{\kappa_f - 1} \left(\frac{Pa_1}{Pf_2} \right)^{\frac{\kappa_f}{\kappa_f - 1}} \left(\frac{Pa_1}{Pf_2} \right)^{\frac{\kappa_f}{\kappa_f - 1}} - \left(\frac{Pa_1}{Pf_2} \right)^{\frac{\kappa_f}{\kappa_f - 1}} \right\}$$

SINCE VALVE IS CHOKED-FLOW RATE VALVE,
MACH IS 1, THIS YIELDS FOLLOWING

$$= \left\{ \frac{Pf_0 AVL_v \sqrt{fT_2}}{\sqrt{fT_0}} Pf_2 Af \sqrt{\kappa_f} \left(1 + \frac{\kappa_f - 1}{2} \right)^{\frac{\kappa_f + 1}{2(\kappa_f - 1)}} \frac{\kappa_f - 1}{2 \kappa_f} \left\{ \left(\frac{Pa_1}{Pf_2} \right)^{\frac{\kappa_f}{\kappa_f - 1}} - \left(\frac{Pa_1}{Pf_2} \right)^{\frac{\kappa_f}{\kappa_f - 1}} \right\} \right\}$$

$$ma = \frac{Pa_0 Aa}{\sqrt{Ra Ta_0}} \left\{ \frac{2 \kappa_a}{\kappa_a - 1} \left(\frac{Pa_0}{Pa_1} \right)^{\frac{\kappa_a}{\kappa_a - 1}} \left(\frac{Pa_0}{Pa_1} \right)^{\frac{\kappa_a}{\kappa_a - 1}} - \left(\frac{Pa_0}{Pa_1} \right)^{\frac{\kappa_a}{\kappa_a - 1}} \right\}$$



mf : FUEL MASS FLOW RATE [kg/sec]

ma : AIR MASS FLOW RATE [kg/sec]

AVLV : FUEL CONTROL VALVE EFFECTIVE OPENING AREA [m²]

Af : ORIFICE INLET EFFECTIVE OPENING AREA [m²]

Aa : VENTURI THROAT EFFECTIVE OPENING AREA [m²]

Rf : FUEL GAS CONSTANT [kJ/kg K]

Ra : AIR GAS CONSTANT [kJ/kg K]

κf : FUEL GAS SPECIFIC HEAT

κa : AIR SPECIFIC HEAT

Pf0 : FUEL CONTROL VALVE INLET PRESSURE [Pa]

Pf2 : ORIFICE INLET PRESSURE [Pa]

PVLV : FUEL CONTROL VALVE THROAT PRESSURE [Pa]

Pa0 : VENTURI INLET AIR PRESSURE [Pa]

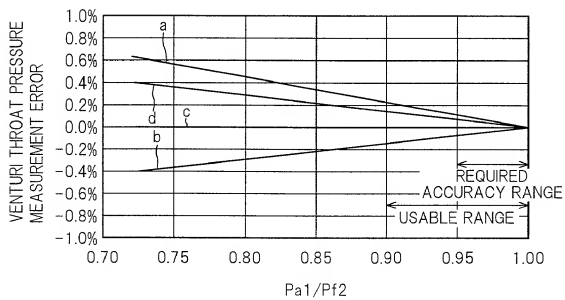
Pa1 : VENTURI THROAT PRESSURE [Pa]

Tf0 : FUEL CONTROL VALVE INLET TEMPERATURE [K]

Tf2 : ORIFICE INLET TEMPERATURE [K]

Ta0 : VENTURI INLET AIR TEMPERATURE [K]

FIG. 10



SAMPLES	SPECIFIC HEAT
a	1.309
b	1.251
c	1.274
d	1.296

FIG. 11

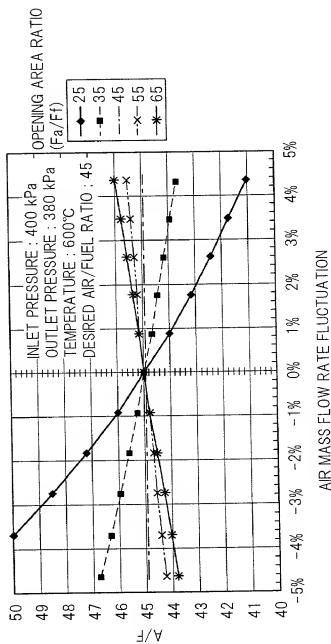


FIG. 12

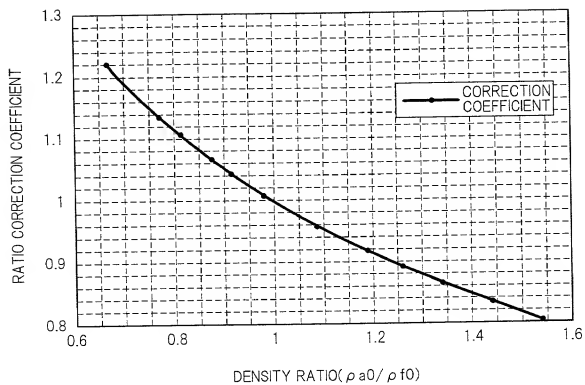


FIG. 13